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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,095	05/30/2001	Ken'ichi Kasazumi	10873.726US01	8515

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HAMRE, SCHUMANN, MUELLER & LARSON P.C.  
P.O. BOX 2902  
MINNEAPOLIS, MN 55402

EXAMINER

ORTIZ CRIADO, JORGE L

ART UNIT	PAPER NUMBER
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2656

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/870,095	<b>Applicant(s)</b> KASAZUMI ET AL.	
	<b>Examiner</b> Jorge L. Ortiz-Criado	<b>Art Unit</b> 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 7-9 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-2 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki J.P. Publication No.64-084458.

Regarding claim 1, Aoki discloses an optical pickup that is provided in an information recording/reproducing device and performs both information recording and information reproduction on/from an information carrier by irradiating the information carrier with light (see page 3, lines 7-8; Figures 1-3) comprising:

a coherent light source (See Figs. 1-3 ref# 14)

a focusing optical system that converges and directs light from the coherent light source onto an information carrier (See Fig. 1-3 , ref# 9,10); and

a spot size adjustor that “switches”/adjust a size of a light spot so that a size of a light spot in a direction perpendicular to an information track is  $d_1$  in an information reproducing operation and the size of a light spot in the direction perpendicular to an information track is  $d_2$  in an information recording operation, wherein  $d_2 < d_1$  (see page 5, line 18 to page 6, line 3; Figure 7- spots B and C)

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Regarding claim 2, Aoki discloses wherein the spot size adjuster includes a variable phase filter that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of a phase shift (See page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. "liquid crystal"), wherein the variable phase filter is divided into at least three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier (See page 9, line 11 to page 10, line 19; Fig. 10, filter is divided in plural at least regions).

Regarding claim 10, Aoki discloses wherein the variable phase filter generates a phase difference between the regions, when information is recorded in the information carrier ; the variable phase filter does not generate a phase difference between the regions of the variable phase filter, when information is reproduced from the information carrier (See page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. "liquid crystal"; applying/not applying voltages)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki J.P.

Publication No.64-084458 in view of Ito et al U.S. Patent No. 5,581,531.

In regard to claim 3, Aoki discloses all the limitations of claim 1 and 2 as outlined above. Aoki discloses that the variable phase filter is divided into "at least" three regions (plural/more than 3). However, fails to disclose wherein the variable phase filter is divided into three regions, and a width of a center region among the three is in a range of 10% to 20% of a width of a light beam passing through the variable phase filter.

But, this feature is well known in the art as evidenced by Ito et al., which discloses an optical pickup having a coherent light source a focusing optical system that converges and directs light from the coherent light source onto an information); and a spot size adjustor that reduces a size of a light spot formed on the information carrier in a recording operation relative to a size of a light spot in a reproducing operation, mainly in a direction perpendicular to an information track wherein the spot size adjuster includes a variable phase filter that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of a phase shift (See col. 4, line 56 to col. 5, line 1; col. 6, line 55 to col. 7, line 14), wherein the variable phase filter is divided into three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier and a width of a center region among the three is in a range of 10% to 20% of a width of a light beam passing through the variable phase filter (See col. 7, lines 1-14; Fig. 8)

Therefore it would have been obvious to one with an ordinary skill in the art at the time of the invention to divide the variable phase filter into three part and a width of a center region

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among the three in a range of 10% to 20% of a width of a light beam passing through the variable phase filter, in order to obtain the optimum intensity distribution of the light as taught by Ito et al.

3. Claims 4-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Aoki J.P. Publication No.64-084458 in combination with Ito et al. U.S. Patent No. 5,581,531 and further in view of Sumi et al. U.S. Patent No. 5,796,683.

Regarding claim 4, the combination of Aoki and Ito et al. shows wherein the variable phase filter is divided into at least three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier in a recording operation (See Aoki page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. "liquid crystal") (See Ito et al. col. 4, lines 39 to col. 5, line 1; col. 6, line 29 to col. 7, line 14; Figs. 1,7B, 7C, 7D), Furthermore Aoki discloses wherein the variable phase filter includes a liquid crystal element, but Aoki in combination with Ito et al. fails to specifically disclose the variable phase filter includes a homogeneous-alignment that is aligned in a direction parallel with a polarization direction of light from the coherent light source.

However this feature is well known in the art as evidenced by Sumi et al., which discloses a homogeneous-alignment liquid crystal element that is aligned in a direction parallel with a polarization direction of light from the coherent light source and divided into at least three regions (See col. 9, lines 1-14; Figs. 6,11A,13A,13B,18)

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to include a homogeneous-alignment liquid crystal element that is aligned in a direction parallel with a polarization direction of light from the coherent light source in order to selectively decide, by change of voltages in the divided regions of the homogeneous-alignment liquid crystal element, whether or not produce a phase difference in the direction perpendicular to information track of the information carrier and dynamically obtain the desired size of the spot as suggested by Sumi et al.

Regarding claim 5, Aoki further teaches wherein the spot size adjustor is divided into at least three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier in a recording operation and in combination with Ito et al. would show varying a quantity of birefringence (See Ito et al. col. 4, lines 39 to col. 5, line 1), but the combination fails to disclose wherein the spot size adjustor includes: a variable wavelength plate that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of birefringence and an analyzer disposed between the variable wavelength plate and the focusing optical system, wherein the variable wavelength plate is divided into at least three regions to produce a phase difference in the direction perpendicular to the information track of the information carrier.

However this feature is well known in the art as evidenced by Sumi et al., which discloses a variable wavelength plate that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of birefringence;

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and an analyzer disposed between the variable wavelength plate and the focusing optical system, wherein the variable wavelength plate is divided into at least three regions to produce a phase difference in the direction perpendicular to the information track of the information carrier (See Figs. 6,7A,7B,11A,11,B13A,13B,18)

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to include a variable wavelength plate and an analyzer disposed between the variable wavelength plate and the focusing optical system in order to selectively decide, by change of voltages in the divided regions of the variable wavelength plate, whether or not produce a phase difference in the direction perpendicular to information track of the information carrier and dynamically obtain the desired size of the spot as suggested by Sumi et al.

Regarding claim 6, the combination of Aoki with Ito et al. and Sumi et al. would show wherein the variable wavelength plate includes a homogeneous-alignment liquid crystal element that is aligned in a direction parallel with a polarization direction of light from the coherent light source (See Sumi et al. col. 9, lines 1-14; Figs. 6,11A,13A,13B,18)

Regarding claim 11, the combination of Aoki with Ito et al. and Sumi et al. would show wherein the variable phase filter generates a phase difference between the regions, when information is recorded in the information carrier ; the variable phase filter does not generate a phase difference between the regions of the variable phase filter, when information is reproduced from the information carrier (See Aoki page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. "liquid crystal"; applying/not applying voltages)



4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. JP Publication No(s): 06-274932, 08-329471, 09-153227, 02-91829, 06-150364, 07-287859, 07-287860.

***Allowable Subject Matter***

5. Claims 7,8,9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicants argues that Aoki does not disclose that “the size d2 of the light spot in an information recoding operation is smaller than a size d1 of a light spot in an information reproducing operation”.

The Examiner cannot concur with Applicant assertions because Aoki discloses that the size “d2” of the light spot in an information recoding operation is smaller than a size d1 of a light spot in an information reproducing operation as claimed. Aoki clearly discloses that at the time of recording the spot is elliptically shaped at point C shown in Fig. 7. An at the time of reproduction a circularly shaped laser spot at point B shown in Fig. 7 and where the major axis of the circular laser spot at point B is greater than the minor axis of the elliptic laser spot, as outlined by the examiner in page 5, line 18 to page 6, line 3; Figure 7- spots B and C.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge L. Ortiz-Criado whose telephone number is (571) 272-7624. The examiner can normally be reached on Mon.-Thu.(8:30 am - 6:00 pm), Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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 HOA T. NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600  
11/13/05